

REMARKS

In the specification, the cross-reference to the parent application has been updated to reflect the issuance thereof as a patent. Paragraph [0029] has been amended to delete the inadvertent occurrence of a “[” symbol, which is believed to be an unintentional artifact from structure (IV).

The claims remaining in the application are 1 through 62; claims 1-46 were previously elected herein and claims 47-62 are withdrawn. Claims 1, 3 and 24 are amended.

The Applicants would like to thank the Examiner for the quick and courteous Office Action.

Rejection Under 35 U.S.C. §112, Second Paragraph

The Examiner rejected claims 24-26 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner finds that claim 24 teaches that the polyol is alkyl glucoside, but teaches an amount of sorbitol. The scope of the claim is thus not clear.

The Applicant appreciates the Examiner pointing out this inadvertent error, and respectfully directs the Examiner’s attention to the amendment to claim 24 herein where the inadvertent use of “sorbitol” in line 3 of the claim has been corrected to read “alkyl glucoside”, as in the first line of the claim.

Reconsideration is respectfully requested.

35 U.S.C. §102(b) Rejection Over Card, et al.

The Examiner rejected claims 1-23 and 27-36 under 35 U.S.C. §102(b) as being allegedly anticipated by U.S. Pat. No. 5,877,127 to Card, et al.

The Examiner finds that Card, et al. teaches a method of fracturing a subterranean formation in which an aqueous fluid gelled with a polysaccharide, and containing a polyol within the scope of the present invention is used. As in the present invention, the Examiner finds that heat and pH control agents are used. The Examiner contends that the

Applicant's discovery of the inherent property of the polyol acting as a breaker does not distinguish over the prior art, citing *In re Tomlinson*.

The Applicant respectfully traverses.

A patent claim is anticipated, and therefore invalid, only when a single prior art reference discloses each and every limitation of the claim. *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047, 34 U.S.P.Q.2d 1565 (Fed. Cir.), cert. denied, 116 S.Ct. 516 (1995).

All of the elected claims herein are directed to *methods* for breaking the viscosity of aqueous fluids gelled with polysaccharides, and recite that the polymer backbone is broken down directly. The Examiner's attention is further directed to the fact that claim 1 has been amended herein to explicitly recite "breaking the viscosity of the aqueous fluid". Support for this addition is found in numerous places in the application as filed, including, but not limited to, the preamble of claim 1, and thus its inclusion does not constitute an improper insertion of new matter.

Card, et al. is directed to a method for

... controlling the delay time of aqueous borate-crosslinked polysaccharide-based fluids for hydraulic fracturing and related applications which allows on-the-fly control of the delay time without comprising overall fluid integrity. Without having to modify the total boron content nor pH of the fracturing fluid, the delay time is controlled by adding a polyol to the fracturing fluid at a first rate, determining the resulting delay time and then adjusting the rate of the polyol addition to the fracturing fluid until the desired delay time is achieved. (Abstract)

Card, et al. teaches that certain polyols are suitable to provide delay time and stabilize the fracturing fluid, as noted in column 11, lines 44-57:

Suitable polyols are those that provide *adequate delay time and stabilize* the fracturing fluid at the end use conditions of the fracturing process. Suitable polyols are preferably those that have an equilibrium constant ($K_{eq} = k_2$ at 25°C.) of at least 10^3 , preferably at least 10^4 . Examples of such suitable polyols include fructose, sorbitol, gluconic acid and salts thereof, e.g., sodium gluconate, glucoheptonic acid and salts thereof, e.g., sodium glucoheptonate, mannitol, ribose, arabinose, and xylose. *Polyols which have been demonstrated not to be suitable in the method of the present invention include glucose, ethylene glycol, glycerol, mannose, and rhamnose.* Each of these materi-

als have a K_{eq} less than 10^3 . One polyol which is not as preferable is galactose. (Emphasis added.)

Applicant respectfully submits that the single Card, et al. reference does not disclose each and every limitation of the claims, namely, Card, et al. does not disclose that polyols break the viscosity of aqueous fluids gelled with polysaccharides. For this reason alone it is respectfully submitted that the instant rejection should be withdrawn. Instead, Card, et al. *teaches away from* the claimed invention by explicitly teaching that polyols stabilize the fracturing fluid. Card, et al. teaches a number of polyols to not be suitable in their method (e.g. glucose, ethylene glycol, glycerol, mannose, rhamnose and galactose), but does not teach or suggest or disclose what the effect of these polyols are, and is silent about any effect, other than that they are not suitable for the Card, et al. method.

“The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the claimed invention.” *In re Mercier*, 185 U.S.P.Q. 774, 778 (C.C.P.A. 1975). In accord are *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.* 796 F.2d 443, 230 U.S.P.Q. 416 (Fed. Cir. 1986) and *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 230 U.S.P.Q. 81 (Fed. Cir. 1986), *on rehearing*, 231 U.S.P.Q. 160 (Fed. Cir. 1986), the latter decision instructing further that the inventor achieving the claimed invention by doing what those in the art suggested should not be done is a fact strongly probative of nonobviousness.

An obviousness rejection cannot stand if the references teach away from the invention, *In re Hedges* 228 U.S.P.Q. 685,687, 837 F.2d 473 (Fed. Cir. 1986).

A reference which leads one of ordinary skill in the art away from the claimed invention cannot render it unpatentably obvious. *Dow Chemical Co. v. American Cyanamid Co.* 816 F.2d 617, 2 U.S.P.Q.2d 1350 (Fed. Cir. 1987); *In re Grasselli, et al.*, 713 F.2d 731, 218 U.S.P.Q. 269 (Fed. Cir. 1983); *In re Dow Chemical Co.* 837 F.2d 469, 5 U.S.P.Q.2d 1529 (Fed. Cir. 1988).

The Examiner's attention is further respectfully directed to *In re Haruna, et al.*, 249 F.3d 1327, 1335; 58 U.S.P.Q. 2d 1517 (Fed. Cir. 2001):

“A prima facie case of obviousness can be rebutted if the applicant ... can show ‘that the art in any material respect taught away’ from the claimed

invention.” *In re Geisler*, 116 F.3d 1465, 1469, 43 U.S.P.Q.2d (BNA) 1362, 1365 (Fed. Cir. 1997) (quoting *In re Malagari*, 499 F.2d 1297, 1303, 182 U.S.P.Q. (BNA) 549, 533 (CCPA 1974)). “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the path that was taken by the applicant.” *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360, 52 U.S.P.Q.2d (BNA) 1294, 1298 (Fed. Cir. 1999).

If the claimed invention is not obvious from the Card, et al. reference, then the claimed invention is definitely novel thereover.

Card, et al. does not know, recognize, understand, claim or teach that some of these agents can be used to break the polysaccharide “polymer chain” or backbone directly in the aqueous fluids gelled with the polysaccharides. Card, et al. only teaches that some polyols *stabilize* the fracturing fluid.

Indeed, the only agents Card, et al. teaches as breaking agents or degradation agents are enzymes or oxidizing agents. The Examiner’s attention is respectfully directed to column 11, line 66 to column 12, line 2 of Card, et al.:

A degradation agent is optionally employed to predictably degrade the set gel, i.e., borate-crosslinked polysaccharide, after a predetermined period of time. *The degradation agents are generally either enzymes or oxidizing agents.* (Emphasis added.)

There is no teaching, disclosure, suggestion or hint from Card, et al. that polyols might serve as degradation agents.

The Examiner’s attention is respectfully directed to claims 27-42 as originally filed herein, where these claims explicitly recite “the method is conducted in the *absence* of an oxidizer breaker or an enzyme breaker” (emphasis added). Since Card, et al. only teaches enzymes or oxidizing agents as degradation agents, the Applicant again respectfully submits that the single prior art reference does not disclose each and every limitation of the claims, namely the absence of an oxidizer breaker or an enzyme breaker. For this additional reason, Applicant respectfully submits that these claims are novel over Card, et al.

It is respectfully submitted that for all of these reasons the instant rejection should be withdrawn. Reconsideration is respectfully requested.

35 U.S.C. §102(b) Rejection Over Harms, et al.

The Examiner rejected claims 1, 2, 4, and 6-11 under 35 U.S.C. §102(b) as being allegedly anticipated by U.S. Pat. No. 5,143,157 to Harms, et al.

The Examiner finds that Harms, et al. teaches an aqueous fluid gelled with a polysaccharide wherein a gluconic acid and its salts may be used as breakers, and that the composition may be used up to temperatures of about 140 degrees F. The Examiner asserts that the concentration of gluconic acid breaker would be within the scope of the present invention. A compound which raises the pH of the composition, such as diethanolamine is taught by Example 1, the Examiner holds.

The Applicant respectfully traverses.

A patent claim is anticipated, and therefore invalid, only when a single prior art reference discloses each and every limitation of the claim. *Glaxo Inc. v. Novopharm Ltd.*, *id.*

Harms, et al. discloses a persulfate/catalyst breaker system which effects controlled breaks of polysaccharide gelled fluids in the ambient temperature range without interfering with fluid performance (Abstract). Harms, et al. consistently requires the use of oxidizer breakers, *e.g.* ammonium persulfates and alkali metal persulfates; please see column 2, lines 19-20; claim 1, column 6, lines 58-59; claim 10, column 7, lines 36-37; and claim 12, column 8, line 16.

The Examiner's attention is respectfully directed to the amendment to claim 1 herein where the *absence* of an oxidizer breaker is recited. Support for this change is found in claim 3 as originally filed and elsewhere, and thus the amendment does not constitute an improper insertion of new matter. The Applicant respectfully submits that the single Harms, et al. reference thus does not disclose each and every limitation of the claim as amended, namely the absence of an oxidizer breaker, and thus the subject rejection should be withdrawn.

The Applicant respectfully submits that the Examiner is aware that this distinction added to claim 1 removes it from the instant rejection since claim 3 and claims 27-46 containing similar language were not subject to the instant rejection.

Reconsideration is respectfully requested.

Double Patenting Over Application No. 10/627,391

The Examiner provisionally rejected claims 1-46 under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-11, 14, 17-25 and 28 of copending Application No. 10/627,391. The Examiner notes that although the conflicting claims are not identical, the Examiner alleges that they are not patentably distinct from each other because although the claims of 10/627,391 differ in teaching the use of a catalyst, the claims therein teach the use of the same polyols under the same method conditions, and would allegedly render the present claims obvious to one of ordinary skill in the art.

The Examiner notes that this is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The Applicant would respectfully direct the Examiner's attention to the enclosed Terminal Disclaimer to Obviate a Provisional Double Patenting Rejection over a Pending "Reference" Application in which the owner Baker Hughes Incorporated of 100% interest in the instant application disclaims, except as provided therein, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on the copending reference Application No. 10/627,391 as such term is defined therein. The Applicant hereby respectfully submits that the subject provisional obviousness-type double patenting rejection is thus obviated. Reconsideration is respectfully requested.

Double Patenting Over U.S. Pat. No. 6,617,285

The Examiner rejected claims 1, 2, 6-13, 15, 16, 18, 19, 21, 22, 24 and 25 under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-9 of copending U.S. Pat. No. 6,617,285. The Examiner notes that although the conflicting claims are not identical, the Examiner alleges that they are not patentably distinct from each other because although the claims of U.S. Pat. No. 6,617,285 differ in not specifying the use of heat or a particular temperature, the specifi-

cation teaches the temperatures at which the polyols are used, and would allegedly render the present claims obvious to one of ordinary skill in the art.

The Applicant would respectfully direct the Examiner's attention to the enclosed Terminal Disclaimer to Obviate a Double Patenting Rejection over a Prior Patent in which the owner Baker Hughes Incorporated of 100% interest in the instant application disclaims, except as provided therein, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of U.S. Pat. No. 6,617,285 as such term is defined therein. The Applicant hereby respectfully submits that the subject obviousness-type double patenting rejection is thus obviated. Reconsideration is respectfully requested.

Supplemental Information Disclosure Statement

The Supplemental Information Disclosure Statement transmitted herewith is being filed *after* three months of the filing date of this national application or the date of entry of the national stage as set forth in §1.491 in an international application or after the mailing date of the first Office Action on the merits, whichever event occurred last but *before* the mailing date of either:

- (1) a final Action under §1.113 or
- (2) a Notice of Allowance under §1.311, whichever occurs first.

The documents are in English and thus no translation or explanation of their relevance is necessary. Because they are U.S. patent documents, it is not necessary that copies be supplied.

Applicant elects the option to pay the fee set forth in 37 CFR §1.17(p) for submission of an Information Disclosure Statement under §1.97(c) (\$180.00).

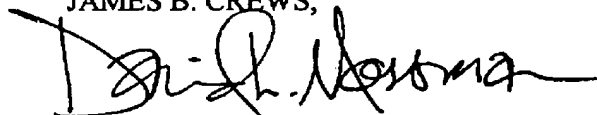
Please see the attached Fee Transmittal PTO/SB/17 for the payment of this fee and the payment of the fees for the two Terminal Disclaimers.

It is respectfully submitted that the arguments and amendments presented above overcome the rejections and place the claims in condition for allowance. Reconsideration

and allowance of the claims are respectfully requested. The Examiner is respectfully reminded of his duty to indicate allowable subject matter. The Examiner is also invited to call the Applicant's attorney at the number below for any reason, especially any reason that may help advance the prosecution.

Respectfully submitted,

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